What is claimed is:

1. A method of detecting the shape of an object comprising the following steps:

a) producing a camera image of the object;

b) mapping an outline of the object, said outline appearing sharp in the camera image, in a first plane by means of an analyzer connected to the camera;

c) altering the focusing distance of the camera;

d) mapping a sharp outline of the object in a second plane by means of the analyzer;

e) repeating steps b) to d) until a sufficient number of outlines has been mapped so that the three-dimensional shape of the object can be established.

2. The method as set forth in claim 1, wherein differences in contrast are mapped to establish which outline appears sharpened in said camera image.

3. The method as set forth in claim 1, wherein said camera is a video camera having a very small depth of sharpness.

4. The method as set forth in claim 1, wherein markers are applied to said object to highlight specific points on said object for identification.

5. The method as set forth in claim 1, wherein said analyzer used is preferably a computer including an image processing program, in which digital image signals are processed or analog image signals, captured by said camera, are digitized and then processed.

6. The method as set forth in claim 1, wherein a camera is used on a surgical microscope.

7. The method as set forth in claim 1, wherein the shape of a patient body part to be treated is mapped as said object, said mapped shape being processed by a navigation system monitoring the treatment zone in order to incorporate the outer shape of said body part in navigation.

8. The method as set forth in claim 7, wherein at least one marker, detectable by said navigation system, is applied to said object to assign the location and shape of said object in said navigation system via the position of said at least one marker as also captured by the camera.

9. The method as set forth in claim 7, wherein at least one fixed point, detectable by said navigation system, is selected on said object to assign the location and shape of said object in said navigation system via the position of said at least one point as also captured by the camera.

10. The method as set forth in claim 7, which is used together with a navigation system for location referencing in radiotherapy methods or surgical operations.

11. The method as set forth in claim 7, wherein the mapped shape of a body part is assigned to that shape determined by a preoperative or intraoperative scan, e.g. a computer tomography or a nuclear spin tomography, to permit compensation or location correction.

12. The method as set forth in claim 1, wherein the mapped shape of said object is used to automatically focus object points or planes defined by the user.

13. The method as set forth in claim 1, wherein the mapped shape of said object is used to produce an image which is sharp at any depth.

14. An apparatus for detecting the shape of an object comprising a camera wherein the focusing distance is changeable automatically or by manual access, and an analyzer connected to said camera and which maps the sharply appearing outlines of said object in various focusing distances or planes in sequence until a sufficient number of outlines has been mapped so that the three-dimensional shape of said object can be established.

15. The apparatus as set forth in claim 14, wherein said camera is a video camera with a very small depth of sharpness.

16. The apparatus as set forth in claim 14, wherein said analyzer is a computer, including an image processing program, in which analog image signals, captured by said camera, are digitized and then processed, and wherein said image processing program determines which outline is sharp in said camera image by mapping the differences in contrast.

17. The apparatus as set forth in claim 14, wherein said camera is attached to a surgical microscope.